

## ABSTRACT

Shakers and methods of testing suitable for various applications, including those presenting adverse test environments. The shakers have a permanent magnet assembly mounted in a sealed housing for vibration along a shaker axis. The permanent magnet assembly is double ended, and includes at least one shorting ring to hold down the inductance of the driving coils at higher frequencies. Fluid cooling (or heating) of both the shaker housing and the permanent magnet assembly allows placement of the shakers inside a temperature test chamber. The shakers may be coupled directly to the article to be tested, or coupled singularly or in a plurality to a test table to which an article to be tested is coupled. Various embodiments and methods of testing are disclosed.